RESEARCH PROBLEM STATEMENT #RW-603

I. Problem Title

Comprehensive land/asset management benchmarking study

II. Problem-Specific Objective

Caltrans needs a comprehensive benchmarking study of its existing land/asset management information system against models that utilize geo-spatial technologies; e.g., Geographic Information System, for data integration and accessibility. The research must show the gap between Caltrans current data model and geo-spatial enabled models developed by others, including the National Cooperative Highway Research Program (NCHRP), state DOTs, public and private entities responsible for managing large amounts of real property and utility information.

III. Problem Description

Caltrans Right of Way manages a large amount of real property and utility information. Staff must respond to a high volume and wide variety of requests from property owners, other state and local entities, the legislature, districts, and management. The existing system lacks a geo-spatial component referenced to parcels or road centerlines that would enable staff to spatially query/analyze/ delineate/map from real property, utility and other associated attribute databases. The ability to spatially access all Caltrans right of way information, as well as the ability to directly interface with other spatially enabled right of way related database information (other state offices, county, city, utility companies, assessors offices, etc.), would greatly enhance Right of Way's management responsibilities. Possible enhancements include: archiving and sharing, the visual display of information, superior mapping capabilities, clear and effective presentation and communication of data, and management processes, and efficient tracking.

IV. Background

In the late 1990's, work was completed towards developing a Caltrans Land Management System (CLMS). Because those efforts did not move forward, the information is now out of date. In 2004, efforts were renewed to convert some right of way databases to Oracle and implement a statewide "status of projects" tool. In 2005, the Transportation Research Board sponsored a NCHRP project to study the use of geo-spatial technologies in right of way, including literature search, case studies and return on investment, and the identification of hundreds of data elements required to perform right of way activities. Caltrans needs to perform additional research to compare the results of that project with its current land/asset management system.

V. Estimate of Duration of Research

a. Duration of Research: 12 months
b. Desired Research Completion Date: 6/30/07

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VI. Statement of Urgency, Benefits, and Expected Return on Investment

Timely and accurate delivery of projects is the cornerstone of R/W involvement in the Project Delivery process. The systems currently in place for tracking parcel data do not meet the needs of the Department. It is imperative that districts be able to monitor the parcels and projects that they are working on and that headquarters staff be able to view what Districts/Regions are tracking. Additionally, all areas of R/W must interface with one another. This includes:

- Planning & Management
- Right of Way Engineering
- Right of Way Estimating
- Appraisals
- Acquisition
- Condemnation
- Relocation Assistance
- Property Management
- Clearance & Demolition
- Utility Relocation
- Project Certification
- Airspace
- Excess Land
- Local Assistance

The benefit of deploying an integrated R/W Program IT system is enhanced ability to deliver project certifications accurately and in a timely manner. The desire to effectively and efficiently track and manage parcels and associated data would benefit from a GIS parcel data model, built upon a base layer from the right of way mapping process; i.e., land net/parcel/cadastre, tied to GPS on a specific datum. Further, the system to be implemented must be part of the Agent's day-to-day work environment, producing documents that will allow the agent to complete their assignment, whether it be an appraisal report, a memorandum of settlement, a utility agreement, etc.

The expected return on the investment in this research project is to provide Right of Way the necessary information to move forward with a revised feasibility study report (FSR) to fund and deploy a geo-spatial enabled CLMS.

VII. Related Research

- Prior benchmarking study
- NCHRP Project 08-55 (on-going)
- FSR written in 2001

VIII. Deployment Potential

This research will allow the Department to move forward with implementing a geo-spatial enabled CLMS in a timelier manner. The potential for full deployment of this system is very high.